

Designing Compelling Business Intelligence Business Cases for an SAP® Software Landscape:
Scenarios for Leveraging Solutions from SAP and Business Objects



Business & Decision

David Dixon and Jean-Michel Franco

Sponsored by



TABLE OF CONTENTS

1.0 EXECUTIVE SUMMARY	1
2.0 THE CASE FOR SAP AND BUSINESS OBJECTS	2
2.1 Value Creation for Business Users	3
2.1.1 Making BI Interactive	3
2.1.2 Making BI Pervasive	5
2.2 Value Creation by Enterprise IT	7
2.2.1 Consolidating or Federating Data	8
2.2.2 Managing Information as a Strategic Asset	10
2.2.3 Reconciling Structured and Unstructured Data	12
2.3 Value Co-Creation by Both Business User and Enterprise IT	14
2.3.1 Delivering Enterprise Tools and Services to the Business	15
2.3.2 Accelerating Time to Delivery	18
3.0 CONCLUSION	19
4.0 LIST OF PRODUCTS DISCUSSED IN THE PAPER	20

1.0 EXECUTIVE SUMMARY

A recent worldwide survey listed business intelligence (BI) as CIOs' number one priority for 2008, the third consecutive year BI topped the list.¹ In this light, organizations that run SAP® software should perform due diligence on solutions from SAP and from Business Objects, an SAP company. New milestones in areas such as user experience and information integration, from both business-user and enterprise-IT perspectives, will be hard to ignore under such a mandate.

From a business user perspective, this translates into more interactive and pervasive BI, both creating a richer user experience and reaching every place where work is done. As enterprise productivity increasingly depends on knowledge work, enabling business users becomes critical to success. Most business users are information consumers, taking a more active role in problem solving through the use of empowering tools that perform deeper forms of analysis. This self-service liberates the business user from reliance on IT for all information requests, and thus helps clear IT backlogs.

In addition, there are new BI richness and reach scenarios that the SAP world has not seen before. BusinessObjects Xcelsius set the standard for a whole new product category called interactive visualization. Similarly, BusinessObjects Polestar is part of an innovative new product class of easy-to-use guided analysis that eliminates the need for any report or query development from scratch. Meanwhile, common workspaces such as mobile devices, Microsoft Office and even your desktop will deliver access to information easier than ever before through BusinessObjects Mobile, BusinessObjects Live Office and BI Widgets, respectively.

From an enterprise IT perspective, there are now new ways to integrate data, whether via consolidation or federation, including structured or unstructured data. Trends in mergers and acquisitions, customer focus, partner networks, legislation, disruptive innovations and globalization drive the need for investments in BI standardization and information integration to overcome the challenge of heterogeneous data repositories. Heterogeneous application and data environments are increasingly prevalent, and therefore should be part of an information strategy rather than treated as a legacy problem.

The enterprise-class information integration features that Business Objects brings to SAP are a big step forward for SAP customers. BusinessObjects Data Integrator not only enhances extract, transform and load (ETL) scenarios for non-SAP data, but also brings to the table new-to-SAP functionalities such as BusinessObjects Data Quality and BusinessObjects Data Federator for data cleansing and enterprise information integration (EII). These functionalities expedite data warehousing initiatives, and when combined with solutions such as SAP NetWeaver® Master Data Management, bring new value to enterprise service-oriented architecture (enterprise SOA) through a solid and data quality enriched enterprise information backbone. In addition, enterprise IT is now available in new ground-breaking product categories in unstructured data management with BusinessObjects Intelligent Search and BusinessObjects Text Analysis.

Lastly, the strengths of SAP and Business Objects product portfolios open new synergistic opportunities. By using the same enterprise tools and platforms to build solutions, business and IT can solve problems interdependently and co-creatively, rather than dependently and in isolation. The usability and power of BI tools are enabling business users to perform tasks that were once exclusively the domain of advanced power users. As a result, a new class of empowered information consumers is emerging called “prosumers” (short for producer-consumer).² These prosumers are business users that can produce their own content without the need for IT help or the more sophisticated training and skills of power users.

For example, the SAP Business Explorer (BEx) Analyzer continues to provide a familiar Excel-based interface for analyzing data from the SAP NetWeaver Business Intelligence (SAP NetWeaver BI) component, and is a tool broadly applied for scenarios beyond advanced power user analysis. At the same time, similar and complementary web-based analysis against multiple Online Analytical Processing (OLAP) databases, including SAP NetWeaver BI, is possible with BusinessObjects Voyager. Crystal Reports is also a familiar tool to SAP shops as the *de facto* standard in enterprise reporting, and a complementary BI tool that was directly embedded in SAP software as an OEM solution.³ It has the potential to bring BI to a much broader audience, from customer-facing employees to business partners to every field worker that needs information to make daily decisions. Lastly, BusinessObjects Web Intelligence empowers end users with a simple-to-use self-service reporting environment with free access to quality-controlled data presented in business terms users understand. Not only do all these tools offer deeper self-service functionalities, but they also allow prosumers and programmers to co-create more closely on relevant enterprise applications.

The success of the Internet has created a new standard where real-time access to vast information is a must, not an option. The promise of “BI for the masses” or the “intelligent enterprise” cannot become reality if there are delays in information access due to performance issues. SAP NetWeaver Business Intelligence Accelerator (SAP NetWeaver BI Accelerator) supercharges the entire portfolio by not only making user experiences satisfyingly fast, but also speeding up and simplifying back-end activities, thereby increasing speed-to-value on both sides.

CIOs of companies that run SAP software now have a full portfolio of options to face their number one priority: enabling business intelligence. But they must choose the right business cases, architecture, organizational structure, and implementation strategy to achieve success. This white paper will provide insight into the new opportunities created by the SAP and Business Objects by sharing scenarios that illustrate current opportunities to deliver high value.

2.0 THE CASE FOR SAP AND BUSINESS OBJECTS

Those familiar with both SAP and Business Objects functionalities will find their software highly complementary, if not synergistic. Business Objects has best-in-class enterprise BI usability and openness. Their tools are intuitive with a high degree of visual control, and are designed to connect to and transform virtually any data source into relevant information. Meanwhile, SAP software has best-in-class enterprise scalability, reliability, change control and security. SAP NetWeaver BI itself is now scaling to 60 terabytes or greater.⁴

In order to illustrate how SAP and Business Objects solutions can meet the many proliferating challenges facing BI users and implementations today, this paper will present a series of scenarios to highlight how SAP and Business Objects products’ strengths can be applied together. These scenarios are grouped by business-user value creation, enterprise-IT value creation and value co-creation (representing the deeper partnership between business and IT now possible). SAP customers should evaluate which scenarios they find most compelling, taking into account how their respective organization and information architecture could serve as both constraint and enabler.

2.1 VALUE CREATION FOR BUSINESS USERS

A majority of business users today are known as information consumers, comprising between 80 and 90 percent by most counts, and represent people anywhere in- or outside the organization. These users are characterized as passive recipients of information that has been pre-processed and packaged by others. The biggest Return on Investment (ROI) will come from converting this group into more active users via increased productivity, and also from reducing the work IT must perform to make information consumable. There is plenty of room for growth both in the number of users as well as in the frequency of BI access. In order to accomplish such growth, BI content needs to be more “sticky” in order to entice users to stay longer and return more frequently.⁵

In order to increase user productivity, BI tools need to deliver greater forms of richness and reach users beyond static reports so that they can accomplish more through ease-of-use and convenience. A richer user experience might include more visualization, interactivity and instant gratification, while more reach should entail relevant information-delivery channels necessary to make BI omnipresent.

In this section, we will consider two types of user-value creation scenarios:

- *Making BI Interactive* are richness scenarios; these consist of case examples for interactive data visualization and guided analysis on search results.
- *Making BI Pervasive* are reach scenarios about how to extend BI reach to where the work is; be it a mobile device, desktop, E-mail, printer or the Internet. These scenarios include cases for mobile devices, PowerPoint and desktop widgets.

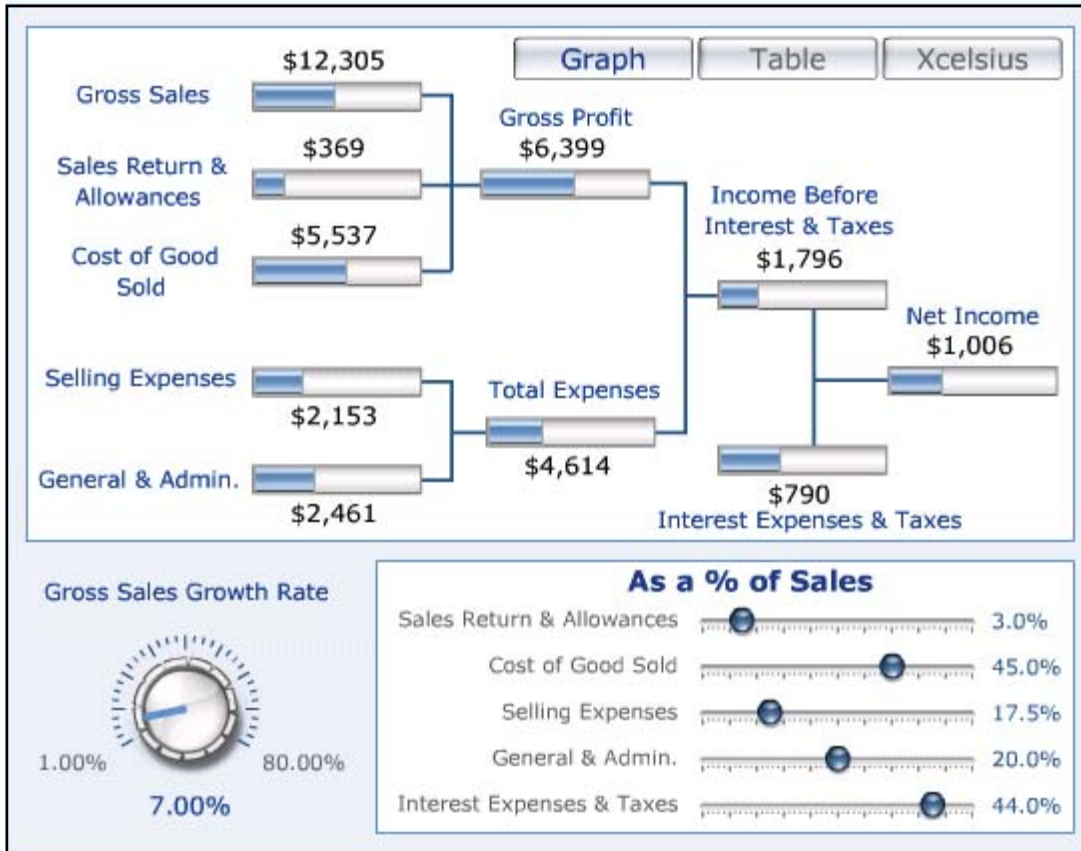
2.1.1 MAKING BI INTERACTIVE

Many companies do not realize how much intellectual property they have locked up in spreadsheets scattered or in dark corners of the organization. Even if the “best practice” spreadsheet models were discovered and shared, only the owners and creators of them would truly understand and trust their results. On the other hand, waiting for IT to build the necessary models is not an attractive option either, because these models are constantly being applied in different ways and circumstances. Furthermore, many of these models are evolving as part of a learning and feedback loop. By the time IT completes coding, the model might be obsolete. Furthermore, an Excel model is much easier for business users to understand than a code-based one.

Interactive data visualization offers a solution by enabling spreadsheet owners to share their models visually for fast communication and adoption. Using visual models for simple “what-if” scenarios enables users to see data patterns more quickly by viewing the relationships visually. Furthermore, the attractive visualizations are not only aesthetically pleasing to the users, but also facilitate usability and adoption. Because BusinessObjects Xcelsius Enterprise can be used for simulations based on models built in Excel, it enables users to be more forward-looking and adjust the underlying models themselves. *An interactive example is embedded on page 4; the reader is encouraged to click on the Xcelsius image and “play” with the buttons, dial and sliders.* Xcelsius files can be easily deployed to Crystal Reports, Microsoft Office and Adobe documents.

Through the real-time integration with SAP data that is available today in Xcelsius, simulation versus actual result feedback loops can be immediate. A case example provided below offers another scenario of how Xcelsius might be applied against SAP NetWeaver BI data. Note however, that Xcelsius also works directly against SAP Business Suite applications and non-SAP sources.

In addition to interacting with data via visual models, users can now enjoy instant information gratification with a product named BusinessObjects Polestar, which leverages the simplicity and speed of search with the power of BI analytics. Rather than waiting on a report development request or dealing with the restrictions of parameterized reports, users can use a search bar as simple as Google to start their investigation. BusinessObjects Polestar then takes the most relevant results of a key word search and automatically translates it into a BI analysis application on the fly, with no need for any prior query or report development. BusinessObjects Polestar picks the relevant BI representations based on guidelines, such as pie charts for percentages and bar charts for amounts that guide the user through an analysis that is designed to be more like Internet browsing than predetermined navigation paths. Combined with the speed of indexing technology and the cost savings from the speed of deployment (just days if the data already exists), BusinessObjects Polestar gives users a tool where they can immediately answer their own questions on a whim.



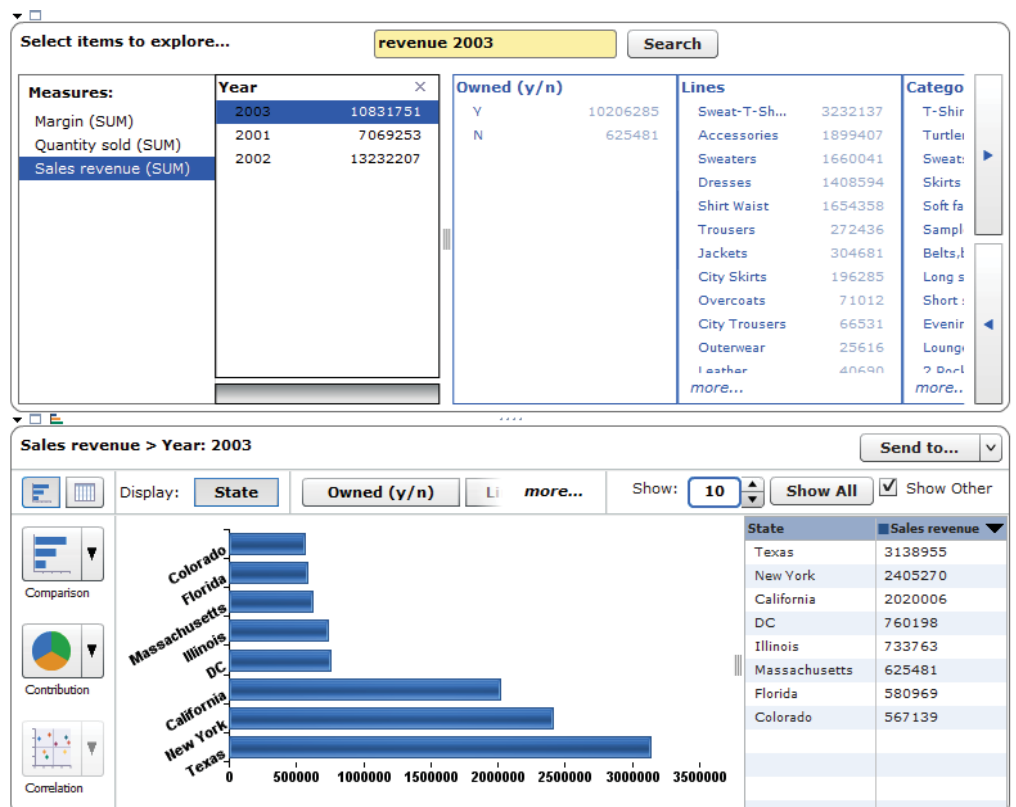
Use Case 1: Understanding Profitability with BusinessObjects Xcelsius Enterprise

In preparation for an account planning session, an account manager does a last-minute review of a customer plan and targets set by the sales planning team in order to build comfort with the assumptions behind them. She uses an Xcelsius model based on a standardized Excel-based financial model that is connected to SAP live data built by the sales planners. She reviews the impacts that the assumptions have made on the planned profitability of her account by performing a form of visual sensitivity analysis.

She quickly runs through various simulations by playing with growth rate and percentage of sales cost variables by adjusting the corresponding visual dials and sliders on her screen. Using this visual approach instead of interacting with the Excel spreadsheet directly, she is able to arrive at a profitability target she is comfortable within a matter of seconds, without having to acquaint herself with any Excel spreadsheets' formulas and dependencies. She also has the confidence going into the meeting that everyone will be talking to the same corporate financial model and that everyone will be prepared to offer feedback on the sales targets. She knows she can now challenge assumptions without spending half the meeting trying to understand them. As a result, the collaboration between sales planning and account planning has become much more constructive.

Use Case 2: Quick Answers with BusinessObjects Polestar

A newly hired marketing director at a clothing manufacturer calls his team to re-plan the advertising and promotion calendar after a budget cut. His initial strategy is to redistribute the campaign funds towards their perceived top revenue-producing markets: New York and California. However, a marketing manager with a longer history with the organization takes issue with the



strategy, claiming that spreading the marketing campaign funds across geographic markets always yielded better overall results. A third team member, tired of the back-and-forth in the discussion, decides to perform a quick search on sales revenue over the last five years in the middle of the meeting. On her first hit, she pulls up a bar chart that shows how in 2003 Texas significantly outperformed both New York and California, thereby silencing the debate and keeping the meeting moving. A more geographically balanced campaign plan is quickly activated as a result, while further investigation is initiated without the need to involve IT.

2.1.2 MAKING BI PERVASIVE

In order for BI to be effective, it needs to fit within the context of where information workers are already doing their work.

There were 758.6 million mobile workers in the world in 2006, and that number will increase to more than 1.0 billion by 2011, a share of over 30% of the global workforce.⁶ There are distinct necessities for workers such as business travelers, outdoor or manual laborers and field agents, who cannot afford to sit in front of a computer. Even in front of the desktop computer, there are a plethora of channels to reach information workers depending on what they have open on their desktop, including a spreadsheet, a document, a presentation, an E-mail message, an instant message, a web site, a portal, a blog, a wiki, a social network, an SAP transaction or the desktop itself.

Furthermore, as more and more work becomes non-routine and exception-based, firing off an alert to the right person at the right time through the right channel becomes increasingly actionable and impactful.

Deploying BusinessObjects Mobile is straightforward, allowing reuse of existing reports and metrics as-is and requiring no additional server. (BusinessObjects Mobile installs as a web service on an existing BusinessObjects XI server, which leverages its security and infrastructure services). There are features to mobile-optimize Web Intelligence reports and Dashboard Builder metrics, such as device-specific report templates to preview how a report will “look and feel” on a mobile screen, or the use of trend and status icons for condensed information display. A use case example below will illustrate a business scenario.

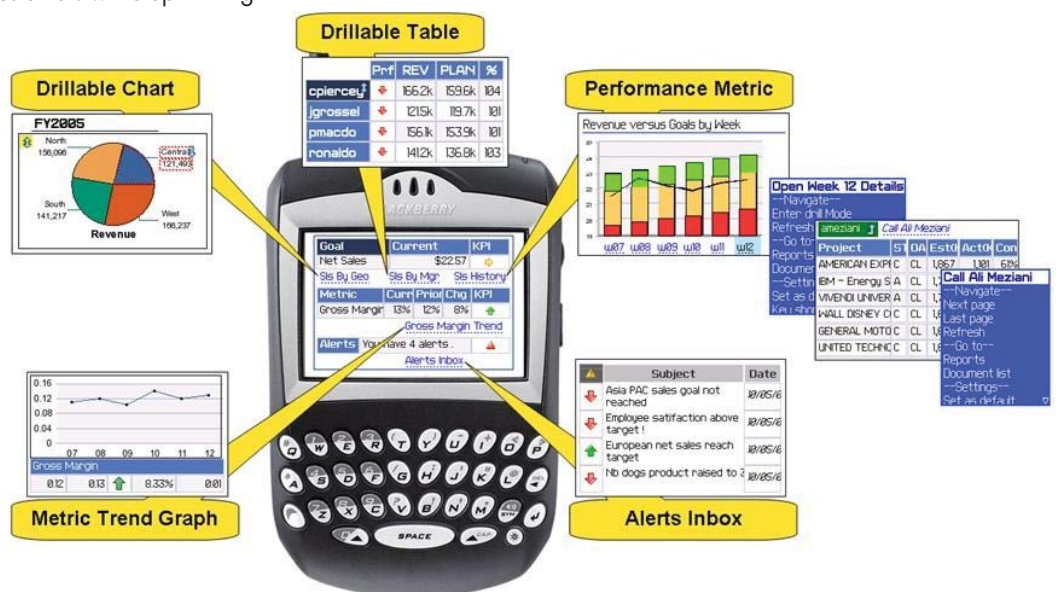
BusinessObjects Mobile also has broad mobile device support supporting Blackberry, Windows Mobile, Symbian, and any other J2ME 2.0 capable devices.

For demonstrating desktop ubiquity, use case examples will be given for BusinessObjects Live Office (which is a Microsoft Office add-on that allows Business Objects reports or ad hoc data to be embedded into spreadsheets, documents and presentations) and the latest innovation for Business Objects Labs — BI Widgets.

Use Case 1: Becoming Closer to Customers with BusinessObjects Mobile

A retail store manager feels frustrated while realizing that well over half his time is spent in the back office instead of on the store floor. He would like to spend more time with his customers while optimizing time dedicated to checking E-mails, reporting results to corporate, preventing stock-outs, evaluating promotional effectiveness, reviewing the staffing schedule, monitoring sales performance, and so forth.

He realizes that although the store’s employees and management have all the information they need to perform their jobs, the problem is that the information is not accessible where it is most needed: the store floor itself. After implementing BusinessObjects Mobile the

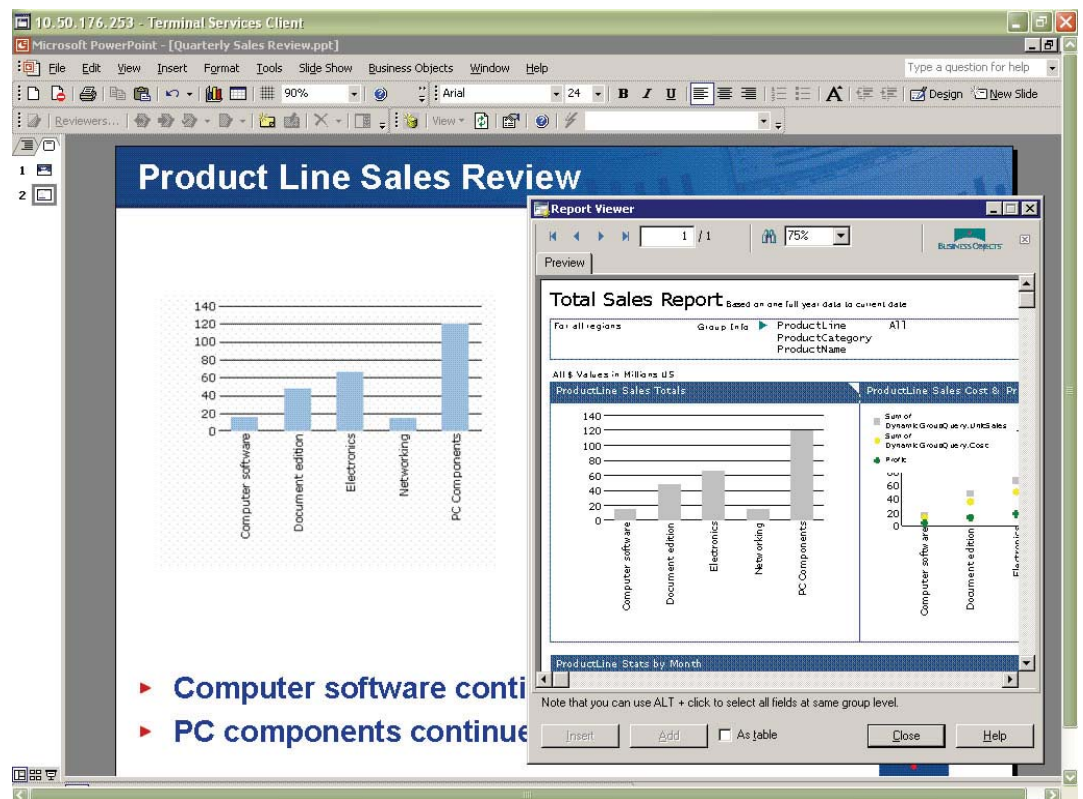


situation significantly improves. Timely and highly interactive BI-based analysis of SAP ERP application data on a mobile device now enables his staff to answer customer questions immediately. Analysis also allows him to get out of the back office and onto the store floor, where he can observe customer behaviors and store floor operations in order to address needs as they happen. Furthermore, from the sales floor he is able to review corporate information on store performance via drillable interactive charts, tables, and metrics with report-to-report navigation. He is also able to monitor the operations of his store, including inventory levels, and can even make adjustments to the underlying data directly. Furthermore, if restocking is necessary, he can respond directly and trigger a replenishment order. Finally, not only is he alerted of operational risks, but external ones as well, with competitive intelligence updates. Now freed from the back office, the store manager feels that he has much more visibility and control over his store and its performance.

Use Case 2: BI Embedded within Microsoft PowerPoint using BusinessObjects Live Office

Every performance review cycle, a finance manager has to go through the same time-consuming and manual process of collecting data from different lines of business, picking the appropriate graphical representations, and then formatting the output. She typically has to coordinate with IT to communicate what type of data she needs if she cannot find it in a report, as it may vary each review cycle. Once she finds the report she wants, she dumps the data into Excel and cuts and pastes any graphs she creates into PowerPoint. At times, the process requires multiple iterations, as financial updates force significant rework. After finishing, she then triple-checks her work and at times catches an error.

After implementing BusinessObjects Live Office, she now does not have to leave her PowerPoint session to create her presentation or call IT. She simply logs into Business Objects from PowerPoint and follows wizards that take her the rest of the way. The wizards direct her to existing reports and graphs, or she can do her own ad hoc selections. Once the data embeds itself in her presentation, she formats and reorganizes using the familiar features of PowerPoint, and can automatically refresh it with up-to-date, secure and enterprise-compliant data without disturbing any of her work. She estimates that the process now takes a third of the time it used to take her.



Use Case 3: New “Dashboard” Deployment Options with BI Widgets

A project manager for a global dashboard based on the SAP CRM application is faced with a challenge of a parallel go-live. Rather than deliver a universal dashboard as a “big bang,” the project manager decides on an innovative and quicker approach in order to better satisfy a diverse user community. The concept is to allow users to create their own “dashboards” by incrementally deploying “widgets” they can



mix and re-mix on their desktop without the need for a portal and without compromising security. In this case, a “dashboard” is the essentially same thing as a dashboard, except that is comprised of interactive mini-applications called “widgets” that a user searches, picks, arranges and personalizes for their desktop. Furthermore, they can be embedded into other Windows applications by drag-and drop. These widgets can be generated from Web Intelligence report elements or Xcelsius files.

As widgets are quick and easy to deploy, the project manager decides to take an “agile” or iterative approach to the project, with a continuous stream of “go-lives” as each widget becomes

production-ready. Furthermore, he plans on leveraging the power of collaboration by calling on business power-users to create content for the user community as well as encourage the user community to share their favorite widgets. The ROI of the project and the widgets will be measured on social ratings, adoption and usage rates.

2.2 VALUE CREATION BY ENTERPRISE IT

Enterprise rhetoric is lofty. Information and process integration are virtually universal aspirations as well as objectives to align people, structures, activities and technologies around common goals and practices. But current realities are bleaker.

Unexpected events such as mergers and acquisitions bring heterogeneity into previously unified landscapes and architectures. Successful “shadow IT” initiatives may emerge that receive the same status as legacy applications, protecting them from retirement or replacement.

Furthermore, homogeneity is not necessarily the right objective; certain heterogeneous scenarios can bring significant value when properly managed. Consider the business case for outsourcing, out-tasking, or deeper integration to the customer’s supply chain. These IT choices are typically deliberate and legitimate architectural ones.

Finally, there is a huge amount of activity within the enterprise that takes place outside the context of well-defined and properly managed business processes. For example, a customer complaint might bypass the normal customer support protocol or an emerging practice might be managed ad hoc until mature enough for formalization. These activities get captured in fragmented personal or workgroup file systems, mail servers, intranets and ad hoc exchanges between individuals.

Heterogeneity is, therefore, here to stay, and this realization is fundamental to understanding the options facing enterprise IT today. As new maturity levels are reached, ripping out and replacing investments cease to be sole options. Orchestrating heterogeneity becomes a strategy rather than a legacy.

There are two fundamental approaches to properly manage this heterogeneity: business process integration and information integration. The practice of Business Process Management (BPM) addresses the first approach, while Enterprise Information Management (EIM) focuses on the second. EIM is defined by one analyst as an “organized program to design, catalog and safeguard all of a company’s information assets — including content found in databases, transaction systems, data warehouses, documents and rich media — to maximize their value, usefulness, accessibility and security.”⁷

Having best-in-class functionalities in both BPM and EIM accelerates time-to-value for all scenarios, especially where one is the pre-requisite for the other: for example, consider the effort to reconcile previously un-integrated sales and billing activities into a consolidated order to cash process without relying on a common customer repository.

The acquisition of Business Objects by SAP creates a portfolio of features that specifically addresses the reconciliation needs of enterprises facing a high degree of information heterogeneity. As a result, we encourage SAP customers to revisit their mixed landscapes and re-evaluate their options. We recommend analysis from both a business perspective, in order to apply it to the right business case, and a technology perspective, in order to implement a well-managed approach and maximize time-to-value.

In this section, we will examine three high-potential information integration scenarios:

- *Consolidating or Federating Data* is about breaking down information silos by reconciling existing information repositories, and can be delivered through very mature technologies, such as extraction transformation and loading (ETL), or a more recent one known as enterprise information integration (EII).
- *Managing Information as a Strategic Asset* goes beyond the first scenario by elevating EIM to a holistic business practice rather than a pure IT initiative. This scenario involves considering information as a business resource. This scenario is more ambitious than the previous one, and needs the formalization of well-defined processes, methodologies, organizations, and roles.
- *Reconciling Structured and Unstructured Data* is a holy-grail scenario. Extracting semantics from unstructured information has historically been more academic theory than pragmatic application. The potential to reconcile structured and unstructured data through a common semantic layer now exists. It is *next practice* rather than *best practice*, an area where innovation can bring competitive differentiation by bringing new levels of insight on customers and processes.

2.2.1 CONSOLIDATING OR FEDERATING DATA

An easy first step on an EIM roadmap is to begin reconciling information across heterogeneous systems, as there are plenty of good places of start. And yet many SAP shops have not gone too far down this road.⁸ More specifically, many shops tend to divide their data warehouse into two separate areas, one SAP-centric, the other non-SAP centric.

There are a number of reasons for this, the first one being cultural. Many customers organized their ERP delivery strategy around an SAP competency center that was initially focused on process integration. However, once the benefits of process integration were achieved, users then asked for process optimization, and SAP NetWeaver BI or the former SAP BW component came into the loop. At the same time, other functional domains introduced other BI initiatives. As a result, multiple BI centers of expertise vested in their own political interests evolved, where each focused on what they knew best.

The second reason why silos exist between SAP and non-SAP data has its roots in data acquisition methodology. Sourcing data from SAP, and more generally on any packaged application, is a different story than sourcing data from files or databases. Packaged applications should ideally be accessed from the applications layer, through a documented business objects repository.⁹ Moreover, it is ideally the application vendor’s responsibility to provide packaged extraction scenarios in order to get data out of the system. Only in a worst-case scenario should you have to reverse-engineer the packaged applications data schema in order to source data out of the package. On the other hand, sourcing data from homegrown applications or non-standard applications usually requires a deep dive into the physical data model. While it is a custom effort, this is usually not daunting, because many of the methods and skills needed to extract data are similar to what was used for the initial build.

Organizations tend to create separate SAP-centric and non-SAP centric data warehouses in instances where vendors did not provide solutions for the full end-to-end EIM spectrum. Such a spectrum needs to include strong mechanisms and predefined business scenarios to both source from SAP and non-SAP, particularly custom applications and niche packaged applications.

The combination of the SAP NetWeaver technology platform and the Business Objects portfolio of solutions provide a big step forward for EIM. It also provides a number of options:

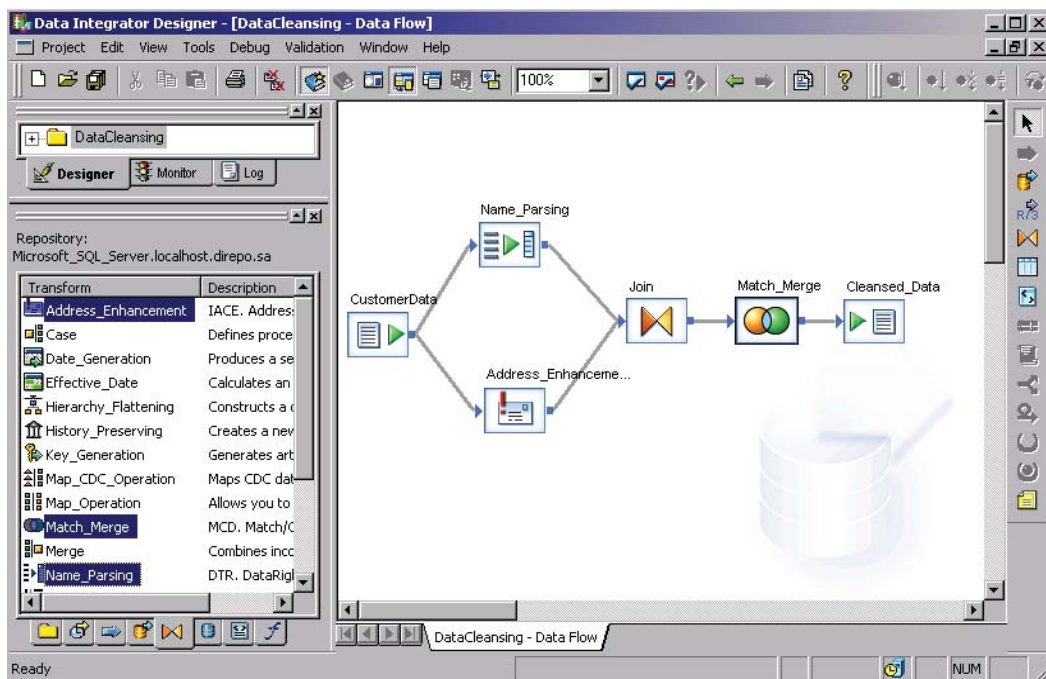
- If the objective is bring SAP data into a non-SAP data warehouse or data mart, solutions like BusinessObjects Data Integrator, BusinessObjects Rapid Marts or SAP NetWeaver BI considerably ease the information integration process during the whole life-cycle, from "Design" to "Build" to "Run" phase.
- When SAP NetWeaver BI is the target of the BI initiatives, BusinessObjects Data Integrator can complement SAP NetWeaver BI in order to easily integrate non-SAP data and reconcile it with SAP data through a fully automated and managed mechanism.

In conjunction with the aforementioned solutions, more sophisticated creations can also be used as part of the integrated portfolio. For example, when data quality poses significant challenges, BusinessObjects Data Insight and BusinessObjects Data Quality can be employed. When unstructured data needs to be reconciled with structured data, BusinessObjects Text Analysis can be used.

In order to further illustrate how SAP and Business Objects technologies can be combined to solve customer business cases, we will highlight two use cases. The first one enables a customer who has heavily invested in SAP NetWeaver BI to widen the scope of its environment by integrating non-SAP data through BusinessObjects Data Integrator. The second one enables a company to bring its BI environment closer to the enterprise level by reconciling two separate data marts and widening their scope through BusinessObjects Data Federator.

Use Case 1: Extending the reach of SAP NetWeaver BI with BusinessObjects Data Integrator

A high-tech company realizes that its procurement processes have reached a plateau and is faced with the law of diminishing returns with acquisitions. Consolidation of standard processes, even through repetitive and well-managed approaches, takes time. Further compressing that time is challenging, since compression holds significant change management challenges.



With the next acquisition, the company decides take an alternative tactic to integration. Rather than focus on process integration first, they decide to focus initially on information integration. By doing so, the enterprise can identify global sourcing opportunities and immediate cost reduction opportunities earlier, enabling acquired subsidiaries to take advantage of their parent’s global contractual agreements. Furthermore, earlier reporting and analysis helps identify which processes should be optimized first.

In addition, information integration expedites the subsequent process

integration initiative by making that implementation clean and audited from the start. Furthermore, the impact on the existing information systems is limited: spend analytics data mart has already been built to support sourcing strategy. Pre-existing reporting and analysis infrastructure therefore focuses the effort on incremental activities around data cleansing and ETL, which is needed for subsequent conversions and migrations in any event.

BusinessObjects Data Integrator with SAP NetWeaver BI performs the integration, as the investments made in both are reusable. As acquisitions occur regularly, integrating external data into the spend analytics data mart will be a regular and repeatable process. BusinessObjects Data Integrator provides time-to-value by giving the ability to quickly discover meta-data and assess data quality, thereby facilitating rapid data integration. Moreover, it provides a well-managed path to deal with non-SAP data. Extending SAP-centric decision support systems with non-SAP data often brings new challenges for data warehouse teams in terms of poor quality of source data and a stronger need to transform and reconcile data. Being empowered by an enterprise-class ETL toolset is much more than a “nice-to-have” in order to face these data challenges at reasonable costs.

By extending the reach of intelligence initiatives and accelerating the information integration cycle, the enterprise can realize the benefits of its acquisition strategy much faster than before.

Use Case 2: Consolidating BI initiatives with BusinessObjects Data Federator

The sales director in a midmarket professional services company wants customer and sales performance analysis for both top-line and bottom-line measures as well. He already has sales and revenue from a customer analytics data mart, but is missing the costs that sit in another data mart for project costs. In theory, the two data marts just need to be stacked on top of each other. However, the two BI projects were managed as distinct initiatives, without an enterprise data warehouse approach, using disparate BI technologies. Due to the degree of heterogeneity, consolidating the two into one would incur significant infrastructure and implementation costs. Replicating cost-related data into the sales data mart is another possible scenario, but this option comes with a high cost when compared with the planned benefits. In addition, such an option would also introduce new layers of complexity into the IT landscape.

Another possibility is to federate the two existing data marts into a virtual data warehouse. As revenue related information is currently managed at the customer level and project is already associated with a single customer, the common denominator is used to reconcile the two data marts. However, the customer master is not uniform between the two tables, so data federation is more than a union of two data sets. Data federation is also a way to compose a virtual “single version of truth” on customer master data.

BusinessObjects Data Federator provides the flexibility and implementation speed necessary to get immediate cross-data mart access. In contrast to the other options, data federation is incremental add-on work, with no need for application re-writing or changing platforms. At the same time, it also provides a well-designed approach that is future-proof and adaptable over time. When changes occur in the two underlying data marts, the federated data model can be synchronized so that transparency is maintained throughout the BI environment, such as within queries and dashboards.

Having this option makes it easier to elevate BI to the enterprise level. Without it, IT was restricted to costlier options. While similar integration features are found in front-end tools such as Crystal Reports, the federated approach provides a greater level of enterprise control and access. In addition, overall functionality, deployment, performance and maintenance are enhanced.

2.2.2 MANAGING INFORMATION AS A STRATEGIC ASSET

Despite significant progress, EIM and data quality are still top-of-the-list pain points for the Office of the CIO. And the problem reaches well beyond BI and IT, going deep into the heart of the business. Concrete examples abound where a lack of information integration and quality is at the root of missed sales opportunities, losses in supply chain efficiencies, and lack of compliance.

Companies are waking up to the notion that information integration is not merely a CIO mandate, but a shared corporate one. Information has become a key enterprise asset, and should be managed as such. The same management rigor afforded physical assets should be applied to information assets. New manufacturing software can increase production throughput as much as opening a new plant. And yet enterprise-wide programs such as TQM, Zero-Defect and Six Sigma typically miss this truth by exclusively focusing on physical supply chains rather than incorporating the information supply chain.

As a result, rather than catching defects at the source they are often discovered after an application system is rolled out. Furthermore, without a formalized initiative, roles and responsibilities for issue resolution are generally unclear and become the source of recurring cross-organizations conflicts. Meanwhile, business takes erroneous actions, and data defects accumulate to the point that a costly cleanup becomes unavoidable.

As organizations come to realize the increasingly high impact of information and the need for process-based controls on the information supply chain, we see the emergence of enterprise-level best practice strategies, involving the following activities:

- *Data governance and stewardship*, which is about exercising and enforcing the authority over the management of information assets as well as formalizing accountability.¹⁰
- *Data quality management*, which is less about reactively finding and correcting errors, and more about proactively progressing the environment towards zero-defects, where quality issues are anticipated and managed as early as possible in the process.
- *Master data management*, which is defined as “a set of processes and tools which centrally and persistently define the non-transactional entities of an organization, in order to collect from, and supply to various processes, unique instances of each entity.”¹¹

In terms of technologies, these practices can take advantage of a mix of solutions such as: *data integration* and *data federation* to extract, consolidate and distribute of information, *master data management* to take care of the governance of non-transactional entities, and *data quality management* to assess, discover, correct and monitor data quality. Until recently, these technologies had shown limits:

- They were very good in their area, particularly within a specific niche such as postal address validation or product categorization according to industry standards. But using them synergistically to address the broader picture of EIM proved to be much more challenging.
- They were designed to empower IT professionals, not business users. Now that information management is being raised as a shared responsibility between business and IT, point solutions must evolve into business applications that are designed to support a cross-functional business processes.

From this perspective, organizations should welcome using SAP and Business Objects solutions to address EIM. Business Objects' strengths in metadata management, data quality and integration of structured and unstructured data are highly complementary to the business-oriented master data management and proven enterprise data warehousing features of the SAP NetWeaver technology platform.

In addition, integrated information is critical to enterprise SOA success. While the focus on enterprise SOA is around composing business processes from previously uncoordinated functional activities, it is clear that in order for information to flow between services, there needs to be a form of contractual agreement. Both services need to understand the structure of business documents being passed, as well as the entities within the document structure. In the case of web services, this could be standardized XML and their associated schemas. If an invoice is supposed to reference the same customer as in an upstream sales order but uses a differently entered technical key, the order-to-cash process breaks. As a result, enterprise information integration not only enables enterprise BI, but also enterprise SOA.

The second reason is that enterprise SOA itself enables information integration. Revisiting the order-to-cash scenario, if data quality services were called at time of invoice creation and auto-corrected the technical key error, the process would be resistant to human error. Enterprise SOA would be the right approach to deploy pluggable “quality check-in” services.

Use Case 1: Enabling Enterprise SOA with SAP NetWeaver Master Data Management (SAP NetWeaver MDM)

A leader in retail and investment banking has been very successful operating in a decentralized fashion. However, they recognize the need for IT centralization and standardization. As part of their enterprise SOA strategy, the IT department creates a centralized MDM team. The team's charter is to work closely with the business units in order to identify improvement opportunities. To the MDM team's surprise, customer and product master data were not priorities. As it turned out, business units already took the initiative for these repositories, and they saw no need to share those assets on an enterprise scale. The customer and product portfolio of retail and investment banking had very little overlap.

However, real estate master data was another story. First, a real estate master data team had already been created due to overlapping needs. However, this team was not part of a standalone initiative, but rather was part of a program to implement flexible real estate management using SAP software.

Together with the newly formed real estate master data team, the MDM team decides to expand the scope of the real estate master data beyond the current SAP ERP implementation. Due to a lack of global understanding of its real estate portfolio and how it is currently used, the bank is missing an important element in its profitability analysis: the cost of real estate by channel. An expanded view of real estate master data would provide the enterprise more information about the offices they use and the related costs.

The ensuing benefits of the master data initiatives are numerous. First, governance and compliance over enterprise information assets through well-defined, transparent and consistent processes is now possible. Second, information quality supports enterprise SOA initiatives by offloading all master data-related issues from the projects so that they can better focus on the process integration issues. Third, it exposes enterprise opportunities for local investments, such as the example of real estate master data. As a result, the MDM team becomes one of the key shared services within the bank organization, in clear alignment with the overall bank strategy.

2.2.3 RECONCILING STRUCTURED AND UNSTRUCTURED DATA

There was a time when the only way to access data was through the application that created it within a pre-specified context of use. Structured Query Language (SQL) enabled users to pull that data outside that context for other uses but required technical resources familiar with the language. Open standards and APIs created additional programmatic ways to access data from the underlying applications for other purposes. But backlogs piled as information demand outpaced programmer capacity.

When BI made information accessible to business users on an ad hoc basis, it was a breakthrough. Users didn't need to know SQL or any other language to access relational or dimensional databases – while still there, it was abstracted away via business semantics. Instead of tables and fieldnames, users were presented with business objects they could understand, such as revenue, customer, products and costs. Broader communities were empowered to specify the information they needed on an ad hoc basis.

Semantic models now exist in the following forms:

- The end-user layer on top of a whole BI environment, including a full-fledged data warehouse such as SAP NetWeaver BI.
- An independent abstraction layer that sits on top of any database, no matter whether it is dedicated to decision support or not. BusinessObjects Universes provide this feature being able to access any standard relational or multi-dimensional database, whether or not it was initially designed to be accessed by queries.

Exposing structured data through business semantics was the BI equivalent of letting the genie out of the bottle. Today, unstructured data is following a similar path as structured data.

Well-supported open standards such as XML and *de facto* standards such as Adobe PDF and Microsoft Office have emerged. As a result, unstructured data is no longer trapped within the applications that created them, but is able to be pulled into new contexts. Solutions such as text search and enterprise content management allow the sharing of documents and excerpts among communities. However, even in the cases where unstructured data has reached the enterprise level by being stored and referenced in a standard repository, it remains totally separate in context from the enterprise data warehouse (or, more generally, from any corporate repository that references structured data). Furthermore, though the unstructured information is indexed, a service that all users appreciate, it is described by semantics that have plenty of room for improvement. Adding better semantics to unstructured data and exposing this information to business users in a manner similar to structured data results in a number of benefits:

First, it makes documents easier to search. For example, extracting entities from unstructured text would simplify finding different key facts and figures of a company, such as revenue, locations, or products. Traditionally, users would have to dig through thousands of links via a classical search engine. If unstructured data shared the same semantics as structured data, navigation techniques that we are already familiar with in BI, such as drill-down, could be applied to unstructured data. Even more sophisticated visualization techniques could be applied in order to take insight out of huge volumes of unstructured data.

Second, it widens the scope of data warehouses. Most data warehouses store quantitative data such as revenue and costs. But qualitative data often resides in documents rather than in enterprise information systems. Reconciling qualitative and quantitative data into a single federated environment would bring obvious value.

Unfortunately, integrating unstructured data with structured data at the enterprise level presently poses a particularly tough challenge. Perhaps that is the main reason why few companies have even tried to engage the process. The first challenge is the sheer volume involved, in terms of number of documents and amount of data therein. The second challenge is that even though more and more unstructured data exists in electronic form, the associated metadata is weak. In other words, unstructured data may not provide any underlying data structure at all, or if it has some data structure, it is either in a format that is not intended to be readable by a machine, or the data structure is empty. As a result, applying the same semantic techniques that were used to repurpose transactional data into BI with unstructured data is not feasible.

Currently, search and text analysis solutions are coming to the market with new approaches to address these issues. More specifically, BusinessObjects Text Analysis software “parses text and extracts facts (addresses, parts, complaints) about key entities (customers, products, accounts). Recognizing entities and facts about them involves natural language processing (NLP), which is a subfield of artificial intelligence that converts samples of human language into more formal representations that are easier for computer programs to manipulate.”¹²

This automated approach eliminates the “people bottleneck.” Although this may lead to a less precise categorization of documents, this auto-extraction considerably reduces costs to bring documents into BI. Imagine the value of extracting insights from customer emails and letters into your customer analytics. Wouldn’t unlocking the insights buried in web-based discussion forums, blogs, chat rooms and social networks at a reasonable cost and timeframe be a marketer’s dream come? Hearing the voice of the customer in this way is not too far away.

Consider the two different ways to work with unstructured data:

- The first way is BusinessObjects **Intelligent Search**, which is a federated search engine that goes beyond simply compiling search results for unstructured data by adding more meaningful semantics to integrated search results, such as auto-categorization on de-duplicated results. BusinessObjects Intelligent Search is also able to consolidate search results with more structured documents usually found in the enterprise information systems such as customer fact sheets, order, invoices, predefined reports, and so forth. When used for aggregating the results from other search engines, such as Google for Internet documents and the SAP NetWeaver Enterprise Search application for all SAP data, BusinessObjects Intelligent Search becomes a powerful federated search engine to bring all results together. When combined with BusinessObjects Text Analysis, BusinessObjects Intelligent Search becomes even more powerful in merging unstructured and structured search results.
- The second way is BusinessObjects **Text Analysis**, which processes, classifies, and summarizes text information and extracts the necessary metadata in order to reintegrate it into classical data access tools or enterprise information repositories. The basic principle involves making unstructured data understandable by the existing IT environment, such as BI or CRM systems. In the BI context, this integration can happen at the user level by integrating data into reports or by exposing it to semantic layers such as the BusinessObjects Universes. BusinessObjects Text Analysis services can also be called as a data source by the BusinessObjects Data Integrator for integration with structured data. This provides new horizons in order to manage unstructured data as an enterprise asset, since it allows for transforming the data and managing its quality through the same processes discussed in other parts of this paper, such as data transformation and data quality management.

Use Case 1: Customer Insight with BusinessObjects Text Analysis

A high-tech company with a fast-growing customer-centric services business realized it needed more customer intelligence than their structured data was giving them. They understood that their growing repositories full of unstructured data in customer mails, surveys, research studies, win/loss analysis studies and call center systems were a potential gold mine for customer insights.

What was lacking was the ability to gather and classify all this data about the customers, their context, pain points, complaints, and suggestions for improvement. Once federated and categorized, this data had the potential to be cross-analyzed with the information that is already present in the SAP CRM application.

The proposed merger between Mega, Inc. and CNA Systems, Incorporated, has been postponed, Mega CEO Joe Smith said in an analyst call. "CNA's 1st quarter revenue dropped by 32%, and they lost 23 million dollars," Smith explained. CNA Systems sources blame weak sales in China. CNA shares (CNAI) fell 47 percent to \$9.84 on May 12, the first trading day after the announcement.	
Company	Mega, Inc., CNA Systems, Incorporated
Date	May 12
Person	Joe Smith
Person Position	Mega CEO
Currency	23 million dollars, \$9.84
Measurement	32%, 47 percent
Country	China
Concept	proposed merger, analyst call, 1st quarter revenue weak sales, first trading day
Event: M&A	The proposed merger between Mega, Inc. and CNA Systems, Inc. has been postponed

BusinessObjects Text Analysis is identified as a solution candidate and a proof-of-concept project is initiated. The focus is on understanding why customer churn is suddenly increasing on services associated with a specific product line. The cause is quickly revealed: a significant portion of the lost customers also had wallet share with a major competitor. The company then finds that a competitor starving for market share targeted that specific line of products as a Trojan horse to penetrate the market.

BusinessObjects Text Analysis is able to go beyond annual surveys and executive meetings for customer intelligence. It is able to unlock the captured but unstructured data around customer experience and transform it into actionable enterprise knowledge. All the messages in archived mailboxes, notes in the optional text fields of SAP CRM, and documents on personal on personal disk drives or intranets are now open for insights and integration with the enterprise data warehouse.

2.3 VALUE CO-CREATION BY BOTH BUSINESS USER AND ENTERPRISE IT

World-class EIM capabilities only address half of the BI equation; the other half must come from user empowerment. Users have far more autonomy and control than some enterprises realize. Users can go outside the firewall for E-mail, instant messaging, collaboration and knowledge management tools. Low-cost and open source software alternatives open new growth possibilities for “shadow IT.” Users always had the power to create their own spreadmarts in Microsoft Excel and Microsoft Access if underserved or neglected by the enterprise IT function. This power of choice forces enterprise IT to better partner with business users.

A TDWI study found that enterprises (business or IT) that try to take a strong stance against user control (i.e. ban spreadmarts) typically fail 94% of the time. Softer governance approaches on the use of spreadsheets are not much better, failing 88% of the time.¹³ Such statistics may come as a shock to executives concerned about compliance risks such as Sarbanes-Oxley. What are needed are enterprise tools and standards that add value for users.

Rather than viewing enterprise IT as a function that produces technology-based solutions to passive user recipients at the end of an implementation, enterprise IT should be seen as a function that provides the business with more active and partnered experiences to solve their problems throughout a solution lifecycle. In short, this is the concept of “co-creation” applied to the business user and the enterprise IT function.

The term is borrowed from “The Future of Competition,” a book by C.K. Prahalad and Venkat Ramaswamy.¹⁴ While the concept was mainly applied to customers and companies, it has more universal applicability to users and enterprises. In either case, whether it is a company’s customers or an enterprise’s users, both groups have grown in influence through the power of choice. They are not passive resources under corporate control, but rather active champions of shared interests.

The scenarios presented earlier under the user value creation for business users section were also co-creation scenarios. Business Objects tools were employed to give the information consumers a richer experience and better support to solve their own problems. By shifting away from static reports to interactive analysis, the information consumer becomes more active in resolving her own information needs, thereby diminishing reliance on IT. This frees up enterprise resources to focus on defining the “single version of truth,” expanding the scope of data, and certifying its quality to give information consumers greater breadth of insight and deepened trust in their data.

For more active users such as power users, there are potentially richer co-creation scenarios through deeper forms of analysis and authoring. Traditionally, the power users were said to represent about 10-20 percent of the total user community. However, the power user versus information consumer distinction is blurring because of the increasing degree of self-service that is now possible. As BI tools get easier-to-use and more powerful, the ranks of effective skilled analysts and information authors grow, a move also spurred by the general shift in the nature of work to be more information-driven. Business and IT trends toward the automation of repetitive and manual tasks shifts job content in the direction of analysis and exception-handling tasks.

This shift forces users to be more than just passive information consumers but without the additional training and skills of a power user. Furthermore, as information is shared, it goes through its own value chain becoming part of more collaborative and widespread processes. As information workers learn how to refashion information for themselves as well as downstream consumers, be they business decision makers or even more specialized developers, the old unidirectional notion of the isolated few providing information to the many begins to fracture. As a result, new terms are needed to describe a business user community that is more active, collaborative and influential on the rest of the organization—the “prosumer” noted in the executive summary.

This section focuses on the active prosumer (i.e. the hybrid blend of the advanced power user and the passive information consumer). There are two types of prosumer, analysts and designers. Analysts are typically well versed in online analytical processing (OLAP) techniques, while designers are typically well versed in building reports and dashboards. The analysts' contributions to corporate value are the *insights* they make from the *data* they are given. The designers' contributions to corporate value are the *content* they make from the *tools* they are given.

There are three critical success factors for enterprise IT and business user co-creation:

1. Easy-to-use and powerful tools for users
2. Valuable, trusted and standardized data
3. High performance and enterprise scalability

In this section, we will consider two types of co-creative scenarios:

- *Delivering enterprise tools and services to the business* is about enabling your prosumers. Two business analyst use case examples are given, one for SAP BEx Analyzer and the other for BusinessObjects Voyager. Two designer use case examples are then given, one for Web Intelligence and the other for Crystal Reports.
- *Accelerating time to delivery*, which details how the SAP NetWeaver BI Accelerator, the final ingredient for co-creation on the Business Objects and SAP NetWeaver platform, enhances the user experience by giving instantaneous access to data no matter the data volumes, whether millions or billions. At the same time, SAP NetWeaver BI Accelerator speeds up the time to design and deliver front-end developments.

2.3.1 DELIVERING ENTERPRISE TOOLS AND SERVICES TO THE BUSINESS

The business analyst needs fast, multi-dimensional access to data and the ability to perform complex calculations on the fly in order to produce insight more effectively. There are some advantages that dimensional analysis has over relational reporting. First, by reorganizing relational data into multi-dimensional cubes, the "slicing and dicing" of data becomes much faster, particularly on large data sets. Second, complex calculations, such as subtotalling and percentages along hierarchies, and logic functions, such as ranking and exception lists, are also much more suited. Lastly, time intelligence is embedded in the analysis in order to handle historical comparisons, trending and semi-additive measures such as headcount, inventory levels and average daily balance. These analysis functionalities, also known as OLAP, are designed for those that need heavy-duty data access to find patterns, relationships and anomalies; these deep forms of interactive analysis are difficult to fully emulate in reports. While it is possible to do analysis on relational structures as well as reporting on OLAP structures, and vice versa, nuances do exist.

SAP BEx Analyzer and BusinessObjects Voyager are query and analysis tools for OLAP databases; the former is primarily an Excel add-in, while the latter is web-based. While SAP BEx Analyzer only supports SAP NetWeaver BI, BusinessObjects Voyager supports integrated analysis across multiple OLAP databases, including those from SAP, Microsoft, IBM, and Oracle, as well as Hyperion Essbase. Other differentiated functions and features will be covered in the use case examples.

Crystal Reports is a reporting tool that can work against both OLAP and relational databases, but is more appropriate for contained data sets. It is the *de facto* standard for enterprise reporting, and is the only complementary front end that enjoys direct integration with SAP NetWeaver BI. As part of an OEM agreement, Crystal Reports was directly embedded into SAP NetWeaver BI as part of joint-development work with SAP. Even before that, Crystal Reports had native drivers to SAP ERP sources for many years, in addition to other popular packaged applications.

Crystal Reports comes in both desktop and web-based versions. It has formatting control down to the pixel for rendering tabular or form-based structures such as page-oriented lists or statements, respectively. Not only is it a usable tool for the business user but is highly extensible by the either the .NET or Java programmer, enabling prosumer and programmer co-creation scenarios.

Web Intelligence is a hybrid query, analysis and reporting tool that also can work against OLAP and relational database structures and is entirely web-based. Web Intelligence is a “free-form” designer and self-service reporting and analysis tool for end users, in contrast to Crystal Reports, which is designed for report authors and IT. Web Intelligence, through its interactive viewing framework, has a high degree of design functions available at runtime. It empowers information-design prosumers by offering many of the same authorship controls that are available in the design-time environment but without altering the original underlying report. It enables co-creative possibilities with programmers as well in the form a software development kit.

Use Case 1: Sales Analysis with SAP Business Explorer Analyzer

A global sales planner wants to review the current worldwide sales performance in order to revise forecasts and targets. She gets an overview of all the countries and then drill-down on all distribution channels to get further details. In her analysis, she creates an ad hoc exception rule with thresholds for processed orders, processed orders values and open orders. She sets “traffic light” colors to be orange and red depending upon how far below threshold orders processed and open orders fall. She then “slices and dices” on the exceptions until she uncovers the insights she needs.

After she makes her findings, she decides to document them by creating a formatted summary, leveraging the same SAP BEx Analyzer workbook. She converts the tabular results into formulas so that she can cut and paste the cells into a form-based layout for formatted reporting

Country	Distribution channel	Processed Orders	Processed Orders Value	Open Orders
Australia	Direct Sales	660,000	61,943,541.00 EUR	51,000
	Final Customer Sales	520,000	78,772,449.00 EUR	66,000
	Sold for resale	644,000	97,791,383.00 EUR	69,000
Canada	Service	555,000	69,763,697.00 EUR	52,000
	Result	2,169,000	326,291,070.00 EUR	217,000
	Final Customer Sales	4,044,000	612,349,542.00 EUR	416,000
Germany	Sold for resale	3,744,000	1,296,926,610.00 EUR	390,000
	Service	144,000	19,310,480.00 EUR	24,000
	Result	7,932,000	1,936,597,560.00 EUR	830,000
France	Direct Sales	9,730,000	1,249,954,603.92 EUR	840,000
	Final Customer Sales	12,600,000	1,193,533,893.76 EUR	1,500,000
	Sold for resale	23,200,000	2,672,122,406.44 EUR	2,350,000
Great Britain	Service	7,600,000	216,666,395.21 EUR	0,000
	Result	53,430,000	5,317,180,210.33 EUR	4,750,000
	Final Customer Sales	21,616,000	1,517,475,448.33 EUR	2,100,000
USA	Sold for resale	19,414,000	1,600,702,186.82 EUR	2,046,000
	Result	41,630,000	3,118,177,614.95 EUR	4,146,000
	Final Customer Sales	2,436,000	135,656,875.18 EUR	180,000
Overall Result	Direct Sales	30,060,000	2,558,252,480.50 EUR	3,216,000
	Sold for resale	882,000	26,070,207.94 EUR	56,000
	Service	4,428,000	151,262,021.87 EUR	516,000
Overall Result	Result	37,806,000	2,871,275,698.29 EUR	3,968,000
	Final Customer Sales	63,074,000	3,970,447,389.68 EUR	3,750,000
	Sold for resale	19,632,400	1,066,964,552.30 EUR	1,148,000
Overall Result	Result	72,707,200	4,367,426,913.16 EUR	4,898,000
	Final Customer Sales	215,074,200	17,922,939,666.73 EUR	16,800,000

purposes without losing the “live” SAP data. She uses this “formula-mode” format so that she can distribute the information as a communication package. She has the control of all Excel formatting functionalities while still being able to refresh these spreadsheets with up-to-date SAP data. Using the comfort and familiarity of Excel with the power of SAP NetWeaver BI, she is able to both investigate exceptions and then communicate them in a highly formatted way using the same tool.



Use Case 2: Visual Sales Trend Analysis with BusinessObjects Voyager

Meanwhile, another sales analyst does not need Excel or the ability to reformat the data for communication distribution. His analysis is more data history-intensive with the need for more visualization of trends. In BusinessObjects Voyager, he is able to take advantage of a time slider that allows him to stretch, contract or shift the time horizon he is analyzing. Because the slider he uses has a smaller graphical representation of the trends, he can preview the trends he wishes to analyze in further detail. His ability to scroll through time visually

helps him to immediately spot trend patterns without having to re-parameterize and re-run queries. Furthermore, he needs access to OLAP databases outside of the SAP environment in order to get sales amounts for accessories and components product lines. As the sales planner is part of a much larger organization that was not married to Excel, a web-based interface made more sense to deliver to analysts in order to reduce deployment and support costs without compromising anything in usability.

Use Case 3: Crystal Reports and Adobe Flex Co-Development

A financial analyst is in the habit of using Crystal Reports to prepare highly formatted and graphical layouts for use into the corporate annual report. As the process requires multiple approvals and continual feedback, he often becomes the bottleneck. As a result, he decides to design a more structured workflow to streamline the process. He works with an IT developer to build a workflow application in Adobe Flex Builder. After the developer completes his work, the financial analyst is able to import this application into any Crystal Report himself as an Adobe Flex .swf file.

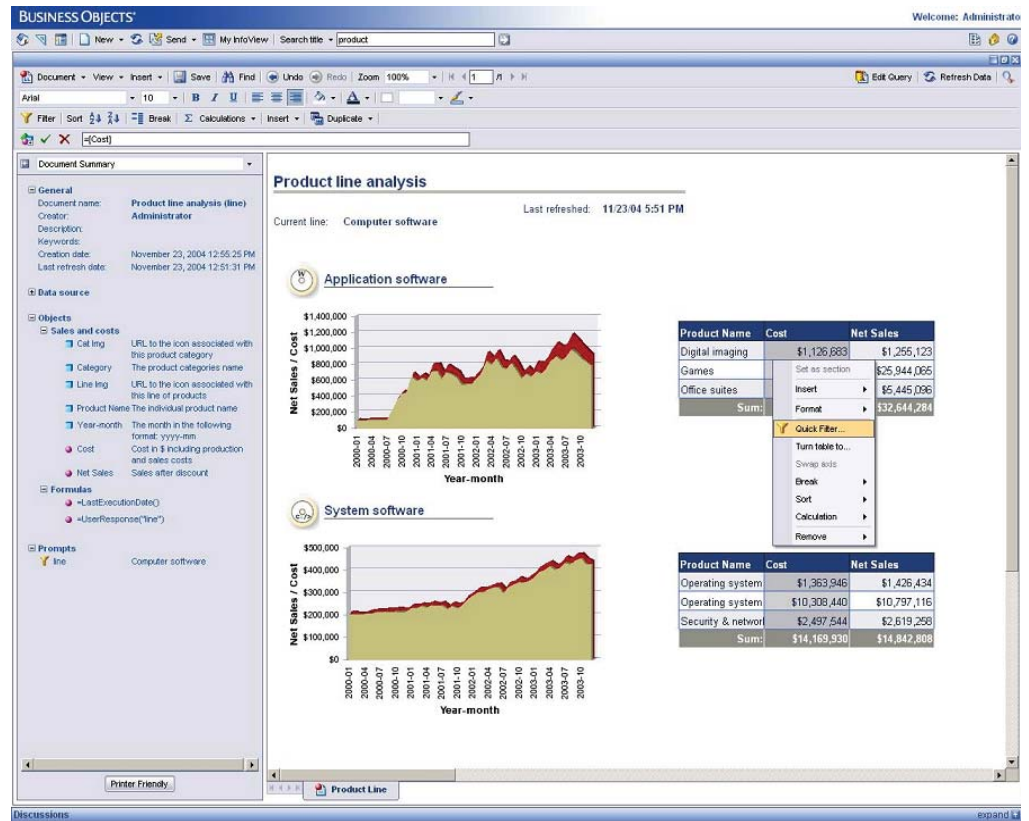
The screenshot shows a web browser window displaying a 'Sales by Country Report'. The report status is 'Draft' and was last revised on August 12, 2007. Below the status is a pie chart titled 'Sales by Country'. To the right, there is an 'Approve This Report' dialog box with 'Approve' and 'Reject' radio buttons and a 'Save' button. Below the dialog is a table showing sales data by country.

	Total
USA	\$2,360,401
France	\$717,529
Italy	\$590,200
England	\$578,229
Germany	\$577,710
Switzerland	\$401,000

As the IT development team comes up to speed with Java-based programming using the Eclipse add-in for Crystal Reports, the success of the workflow application opens up conversations on what other types of applications the business and IT can co-create together. A co-development process is developed where Crystal Report files are iteratively shared between the Java developers (through Eclipse) and power users (through Crystal Enterprise). Overall, a richer business user experience results in the co-creation of the applications that serve them. By being able to give direct feedback in the form of actual edits, users develop a rapport with the developer team and feel part of the problem-solving process.

Use Case 4: Free-Form Design with Web Intelligence

A software product line manager decides she needs to completely revamp one of her reports in order to gain insight on the performance of two product categories: application and system software. She does not want to wait for one of her power users to give her the report she needs or have to go back to IT, and doesn't. Through the interactive viewing framework of Web Intelligence, she is able to make changes to her view of the report on the fly while doing analysis. She first reviews one of her trusted reports to understand the data behind it. She then creates side-by-side net sales and cost comparisons for application software and system software product categories. In order to visualize trends while having details, she creates two graphs with product breakdowns next to them via point-and-click and drag-and-drop. After she is done with her analysis, the power users review her work and have some ideas of their own to enhance it. They engage her in a co-creative dialogue, as they both understand the underlying tools to solve problems together.



2.3.2 ACCELERATING TIME TO DELIVERY

Because of its speed and simplicity, search may soon become the *de facto* standard for data access over SQL and any other query language. Search is already the standard for unstructured data access. Consider how fast and predictable Google search results are given the enormous amount of data on the web. Taking it a step further, consider the amount of training needed to access information using a search bar versus an SQL prompt. The power of search has now been applied to structured data, and the results have leapfrogged over all other performance optimization techniques. In conjunction with column-based indexing and compression algorithms, SAP leveraged its search engine and application memory layer to create break-through performance. The industry is calling this new capability "in-memory analytics."

In-memory analytics will have a profound impact on business and IT. By moving data off of the database and into application memory with fast indexing and compression every activity that touches that data becomes hyper-accelerated, whether it is OLAP analysis, building reports, data loads, realignments or basic administration. Front-end and back-end data handlers alike are able to process data much more rapidly.

The most powerful tools and trusted data are rendered ineffective if query response times are at a crawl. Furthermore, if query response times are slow, users will perceive tools as broken and data as corrupt, no matter the reality. Success in all three ingredients (tools, data and performance) is needed in order to make the user productive and self-service a practical reality. Analyst prosumers can "slice-and-dice" unrestrained and run more data-intensive calculations on the fly. Design prosumers can see the impacts of their edits immediately through WYSIWYG (what-you-see-is-what-you-get) development in real-time.

For administrators, the time-intensive matter of building and maintaining data aggregates is eliminated with an in-memory "aggregate" that can address every possible navigation state. It also eases the burden of query performance optimization activities, where historically there has been a high-degree of scrutiny and attention to squeeze every second out of the system on a never-ending basis.

In SAP NetWeaver BI, in-memory analytics is achieved via the leading-edge SAP NetWeaver BI Accelerator software. An appliance is available that bundles the SAP NetWeaver BI Accelerator software together with hardware and essentially plugs into pre-existing SAP NetWeaver BI deployments without much design impact (aside from picking which aggregates to turn off). While SAP NetWeaver BI Accelerator is only used to index multi-dimensional cube data in SAP NetWeaver BI, the technology has the future prospect of being applied more broadly across any data set. For example, scenarios that use BusinessObjects Polestar and SAP NetWeaver BI Accelerator with data outside of SAP NetWeaver BI is an anticipated promise with significant potential. As SAP NetWeaver BI Accelerator becomes more pervasive in SAP applications, fast real-time analysis on an unprecedented scale will be possible.

Use Case 1: Accelerating data access with SAP NetWeaver BI Accelerator

A BI Director found herself in the uncomfortable position of drawing increasing user criticism. While the BI implementation was successful at first, its growth ultimately led to performance issues. Users were waiting as much as an hour for some queries and, even worse, lost trust that the data was accurate. In addition, her IT team was struggling to make their batch window for having the previous day's ERP updates (new records and realignments) available by the start of the next business day.

They looked to SAP NetWeaver BI Accelerator to solve their performance issues in hopes that the hype around "Google-like" speeds was true. In fact, in one benchmark she found a billion records returns within three seconds. She implemented SAP NetWeaver BI Accelerator as a "big bang" for all financial queries before the year-end close. They find that not only SAP NetWeaver BI Accelerator exceeded user expectations but the close process executed faster due to quicker reconciliations and more responsive reporting. Furthermore, in the months following the close, she witnesses increased usage, new reports proliferate, and IT resource capacity can be reallocated.

She now observes that this instant access to information has boosted user satisfaction, reduced the use of spreadsheets and increased the usage of the system. Users are now leveraging the deeper analysis functions and features the way the BI tools originally intended. Due to performance constraints, user frustration resigned them to follow pre-defined access paths to information, such as pre-canned queries or pre-aggregated summaries. Now, users can perform unrestricted analysis on their own terms and take BI to the next level: using it for discovery rather than for validation.

3.0 CONCLUSION

After reviewing these scenarios and use cases, readers should find some that resonate. The examples were meant to make the concepts more concrete and tangible. Many of the pain points described are commonly shared ones in the SAP world, while the solutions are often specific to an organization's political, architectural and cultural realities. The scenarios and use cases are meant to illustrate the many possibilities that are now available to SAP customers from SAP and Business Objects.

The new possibilities come at a time when they are most needed. IT investments continue to grow, as do the solutions that are funded by it. So far, much of this growth has contributed more to complexity than simplification. Standardization on enterprise solutions from SAP and Business Objects helps manage this complexity from an enterprise IT perspective and business user perspective. But more importantly, they are the engines behind competitive advantage in a playing field increasingly governed by information and knowledge-based rules of winning.

The face of business is changing, and we are seeing that reflected in the new SAP and BI offerings. With those changes comes inherent obsolescence and outdated modes of operation. Companies using SAP software will review their environments and question their policies and practices. Traditional solutions and conventional approaches will be reevaluated and redefined within the context of the recent opportunities created by the acquisition of Business Objects by SAP. Forward-looking customer roadmaps and in-progress projects alike will be reviewed in light of what is now possible.

As a final takeaway, now that business fully appreciates the power of analytics, there will be more pressure on IT to deliver on the BI promise. The call to action is today. The use cases presented are scenarios that are possible with SAP and Business Objects solutions that are now on the market. Now that the two companies have merged, future releases will undoubtedly bring more innovations and tighter integration between components. However, while products roadmaps should be carefully studied for proper planning of the BI landscape, they should never slow down the innovation process.

4.0 LIST OF PRODUCTS DISCUSSED IN THE PAPER

BusinessObjects Xcelsius Enterprise4

BusinessObjects Polestar4

BusinessObjects Mobile5

BusinessObjects Live Office6

BI Widgets7

BusinessObjects Data Integrator9

BusinessObjects Data Federator10

SAP NetWeaver Master Data Management11

BusinessObjects Intelligent Search13

BusinessObjects Text Analysis13

SAP NetWeaver Business Intelligence with SAP Business Explorer Analyzer16

BusinessObjects Voyager17

Crystal Reports17

BusinessObjects Web Intelligence18

SAP NetWeaver BI Accelerator19

ABOUT THE AUTHORS

David Dixon is a Vice President at Inforte, a Business & Decision Company, and co-author of the book "Mastering the SAP Business Information Warehouse." He joined Inforte in March 2004 via the acquisition of COMPENDIT, an SAP BI consulting firm. David was a founding team member of COMPENDIT. Prior to that, he was a Platinum Consultant with SAP. David has worked with SAP's SEM development team on numerous occasions in support of Business Consolidations and Business Planning and Simulation, and has also continuously collaborated with the SAP NetWeaver RIG Americas. He started his career in 1995 as a Financials and Controlling (FI/CO) consultant with SAP, specializing in all of the SAP reporting and analysis applications and tools. David has extensive project experience in implementing complicated global solutions for Fortune 100 companies and has presented at various SAP and BI forums such as SAP TechEd, TDWI and ASUG.

For more than 15 years, **Jean-Michel Franco** has dedicated his career to developing and broadening the adoption of innovative technologies in companies. He set out at EDS by creating and developing a new Business Intelligence practice. He then joined SAP EMEA for the business development of the BI and ERP solutions, and as Director of Marketing solutions in France & North Africa. Today, as Solution Director for Business & Decision, he designs and markets the offerings of the leading consulting and system integrator company at the global level.

In addition, Jean-Michel Franco is an author and contributor of three books in France about best practices leveraged by information systems: "Manage the enterprise through the data warehouse" - Eyrolles; "Adaptation Dynamics" - Village Mondial; "MySAP for dummies - French edition" - First Interactive.

-
- ¹ Gartner Executive Program, "Gartner EXP Worldwide Survey of 1,500 CIOs Shows 85 Percent of CIOs Expect 'Significant Change' Over Next Three Years," press release, 23 January 2008, <<http://www.gartner.com/it/page.jsp?id=587309>> (9 February 2008).
 - ² Futurist Alvin Toffler coined the term "prosumer," a combination of "producer" and "consumer," in his book, *The Third Wave* (William Morrow & Co, March 1980).
 - ³ Crystal Reports was embedded in SAP BW as part of long-lasting Original Equipment Manufacturer (OEM) partnership that lasted five years starting in September 2001 up until SAP BW version 3.5.
 - ⁴ Carol Davis, et al. "Extreme Business Warehousing," IBM Case Study Document WP101012, page 3, 6 May 2007, <<http://www-03.ibm.com/support/techdocs/atsmastr.nsf/WebIndex/WP101012>> (9 February 2008).
 - ⁵ The term "stickiness" is one that is popularly used by marketing to refer to the ability of a website to retain visitors, keep them engaged and have them revisit frequently.
 - ⁶ Stacy Sudan et al. "Worldwide Mobile Worker Population 2007–2011 Forecast," IDC Study Document 209813, December 2007, <<http://www.idc.com/getdoc.jsp?containerId=209813>> (9 February 2008).
 - ⁷ David Newman, "Business Drivers and Issues in Enterprise Information Management," Gartner Document G00129712, 25 July 2005, <http://gartner.com/DisplayDocument?ref=g_search&id=483839> (9 February 2008).
 - ⁸ Phillip Russom, "Business Intelligence Solutions for SAP," The Data Warehouse Institute Best Practices Report, October 2007 <<http://www.tdwi.org/research/display.aspx?ID=8769>> (9 February 2008).
 - ⁹ The term "business objects" is used here as a conceptual reference and is not to be confused with "Business Objects" the company or "BusinessObjects" the brand.
 - ¹⁰ Robert S. Seiner, "The Stewardship Approach to Data Governance," The Data Administration Newsletter, 1 January 2008, <<http://www.tdan.com/view-articles/6703>> (9 February 2008).
 - ¹¹ "Master Data Management," Wikipedia, <http://en.wikipedia.org/wiki/Master_Data_Management> (10 January 2008).
 - ¹² Jason Kuo, "Turning Unstructured Text into Insight," Business Objects White Paper Document WP3113-A, 2007 <<http://www.businessobjects.com/forms/default.asp?id=701600000097s9>> (9 February 2008).
 - ¹³ Wayne Eckerson and Richard Sherman, "Strategies for Managing Spreadmarts," The Data Warehouse Institute Best Practices Report, January 2008 <<http://www.tdwi.org/Research/ReportSeries/index.aspx>> (9 February 2008).
 - ¹⁴ C.K. Prahalad and Venkat Ramaswamy, *The Future of Competition: Co-Creating Unique Value with Customers* (Boston: Harvard Business School Publishing, 2004).

ABOUT BUSINESS & DECISION

Founded in 1992, Business & Decision is an International Consulting and Systems Integration company specializing in Business Intelligence, Customer Relationship Management (CRM) and E-Business. The Group works with clients to implement systems that aim at driving business functions and performance (dashboards, reporting, consolidation etc.); help in customer relationship management (sales force automation, call centers, campaign management, analytical CRM); and assist in E-Business (intranet and extranet portals, directories and Meta directories, e-commerce, knowledge management, Open source technologies, etc.). With more than 2,500 employees worldwide, Business & Decision has developed a "complete project" approach that spans from consulting to implementation. The Group has a reputation for its functional and technological expertise and has forged partnerships with all of the key technology vendors. At present, Business & Decision has more than 1,200 clients. Business & Decision has been listed on the Euronext Paris since February 2001 (compartment B / Isin code: FR 00000 7895 8 /Symbol: BND). Business & Decision is listed in the NextEconomy segment and in the IT-Cac (technology market). For more information, visit: www.businessdecision.co.uk.



Business & Decision Limited
1 Liverpool Street
London
EC2M 7QD
Tel: +44 (0)207 956 2073
Fax: +44 (0)845 602 2483
www.businessdecision.co.uk